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First meeting of the PADIS
Regional Technical Committee

26 - 27 March 1985
Addis Ababa, Ethiopia

LC/NAIROBI

ESTABLISHMENT OF A DATA TRANSMISSION NETWORK USING ADVANCED TECHNOLOGY IN TELECOMMUNICATIONS

Establishment of data transmission network using advanced technology in telecommunications

1. The proposal for a co-operative international information and documentation system inevitably implies constant work on designing, editing, adapting and adopting technical standards for information processing (the System), and on agreements co-operation between the users in both supplying and exploiting the information processed (the Network).

2. The need for a system and a co-operation network has always been agreed in the feasibility studies and project profiles prepared for the launching of the Pan African Documentation and Information System (PADIS).

3. More specifically, the feasibility study entitled DEVSIS-AFRICUE, submitted to ECA on 1 June 1979 following a joint study by ECA/IDRC/UNESCO/UNDIESA/UNDP and OAU, recommended the establishment, for the economic and social development of African countries, of a pan African documentation and information system designed as a network of participating centres and organizations.

4. This recommendation was endorsed by resolution 377/XV, approved at the eighteenth session of the ECA Conference of Ministers (8 April 1980) which called upon the international community to:

> "... provide full support to the African continent for the immediate implementation and development of the project in order to allow an effective organization of the regional, subregional and national inputs centres as a network."

5. Accordingly, the PADIS programme contains four major development objectives:

(a) The establishment of a PADIS System with the technical capabilities for processing all types of information;

(b) The establishment of a PADIS co-operative network between African centres, operating at regional, subregional and national levels, to be set up gradually using the most appropriate technology;

(c) The establishment of a Pan African agreement on a common status for information experts collaborating with the PADIS project; and,

(d) The establishment of a common co-operation policy between the centres participating in the PADIS System and network.

6. In order to meet the requirements for establishing the PADIS network, a sub-system called PADIS-NET was included in the programme for the implementation of the project.

7. The immediate objectives of PADIS-NET can be described as follows:

(a) Distribution of the same classification criteria for the various types of information to be processed to all participating centres, for discussion and adopting including the establishment of Pan African agreements on the components of the PADIS System (DEV, COM, STAT, TEND, CORE, PROM, STISD);

(b) Adoption by all participating centres of the same standards and same methods of analysis and storage of bibliographical, reference and digital information;

(c) Establishment of regional and subregional agreements on the rational distribution of work and effective co-ordination of activities;

(d) Technical assistance to member States, on request, for the establishment and strengthening of national Centres or participating specialized national or inter-African centres (IPCS);

(e) Design of a network to institutionalize local links and exchanges between participating centres of the NIDC and IPC type and other subregional centres;

(f) Definition of graded levels of participation by these Centres in PADIS-NET;

(g) Technical proposals for a data transmission network using the most appropriate technology in this field with a view to facilitating interconnections between the participating centres and their access to extra-African networks and Information Centres;

(h) Establishment and management of a central co-ordinating office (PADIS/CCO) for the network (and for the System) at the Economic Commission for Africa (ECA).

8. From the operational standpoint, the PADIS-NET structure was designed as a network with three levels (regional, subregional and national) following the division of African countries into subregions adopted by ECA (North, West, Centre and South-East).

9. Within this structure, specific roles have been assigned to the Central Co-ordinating Office (PADIS/CCO), to the four subregional Centres (PADIS/SRC) and to the participating Centres (NIDC and IPC).

10. The roles assigned to the Centres at the three levels are described below:

11. (A) Regional level - PADIS/CCO at ECA headquarters in Addis Ababa is in charge of the System project and the general co-ordination of the network. More specifically it has the following responsibilities:

(i) To store in a central computer a copy of each file of the system base data generated or acquired in the context of PADIS (according to its components);

(ii) To contribute, in co-operation with subregional Centres (PADIS/SRC), to the creation of an archive and clearinghouse, (in particular for non-published documents) using microfiche or other more advanced storage media (for example, video discs);

(iii) To put at the disposal of member States, at their request, all primary or secondary information available in the PADIS System;

(iv) To organize and promote training programmes for member States;

(v) To prepare the central technical infrastructure for the project and the management of a Pan African data transmission network;

(iv) To study plans for interconnecting the PADIS-NET network with extra-African Centres and networks in order to allow access in Africa to files identified under PADIS-STISD.

12. (B) Subregional level - The planned four subregional Centres for the four African subregions are to be set up in the following cities:

(i) PADIS/SRC-ESADIS, for East and Southern Africa, at the Lusaka MULPOC headquarters, Zambia;

(ii) PADIS/SRC-CADIS, for Central Africa, at the Yaounde MULPOC headquarters, Cameroon;

(iii) PADIS/SRC-WADIS, for West Africa, at the Niamey MULPOC headquarters, The Niger;

(iv) PADIS/SRC-NADIS, for North Africa, not yet identified; the location will be decided upon after consultations with the States of the subregion.

13. From the operational point of view, the PADIS/SRCs will have the following responsibilities:

(a) To store in subregional computers the complete collection of data bases prepared and put at the disposal of all member States by the countries of the subregion;

(b) In co-operation with the other PADIS/SRCs and the PADIS/CCO, to contribute to the establishment of the general PADIS archives (clearinghouse) for primary documents;

(c) To put all available PADIS information at the disposal of member States, on request;

(d) To organize and promote subregional training programmes, in co-operation with PADIS/CCO;

(e) To prepare suitable subregional technical infrastructure to interconnect the PADIS/SRCs with PADIS/CCO using the most appropriate data transmission technology;

(f) To co-ordinate, in their respective subregions, the collection of data for the various components of the system, in particular for PADIS-DEV and PADIS-COM.

14. (C) National level - At the beginning of the project around 15 specialized institutional centres (IPCs) and 50 national centres (NIDCs) were expected for the African continent. As regard PADIS-NET, the participating Centres were supposed to play the following role:

(i) To collect and analyse data at the local level according to type of information as defined by the various PADIS components and, perhaps, to store the data on an information medium;

(ii) To put at the disposal of the relevant subregional Centres information suitable for distribution to participating States;

(iii) To contribute, in co-operation with their local PADIS/SRC, to the establishment of subregional archives (clearinghouses) for primary documents.

(iv) To prepare suitable infrastructure for the eventual interconnection of the participating Centres to their local subregional centres using the most appropriate technology;

(v) To undertake any other activity provided for in the statutes of those Centres.

15. In view of the paucity of facilities in Africa at the national, subregional and regional levels both in the areas covered by the project and in the management of information processing systems, PADIS/CCO has had to undertake an overall evaluation of the scope of the effort involved.

16. The task is overwhelming, in view of the following problems:

(a) At the national level, very few African centres of the NIDC type have developed to operational levels;

(b) At the subregional level there are no facilities at all and agreement between States involves difficult negotiations;

(c) Telecommunications facilities are inadequate (at the Pan African level) in spite of the considerable efforts made by regional programmes such as PANAFTEL;

(d) Judging by the experience of UNESCO and UNDP in this field, the establishment of documentation and information centres requires investment in personnel for training and management, basic equipment and technical materials costing around $US 900,000 to 1,500,000 per centre.

(e) Information generated at the national level by developing countries is certainly indispensable for their growth; however all indications are that such information is insufficient;

(f) The information needs of the African continent are all-encompassing and inter-sectoral;

(g) The potential users are generally not trained to use a modern information and documentation system; therefore a user training programme is indispensable if the information system is to be profitable;

(h) Logically, development imperatives require African countries to embark now on programmes to establish national data bases that can be computerized; at the same time, experience with existing systems has shown that the use of computers in national centres is indispensable only with files comprising several thousands of documentary units.

17. In spite of the contradictions in the foregoing, the PADIS management has tried to assess the overall costs of establishing PADIS-NET.

18. Three levels of connection to the Network have been envisaged to permit the gradual establishment of the Network structures:

(a) Level A: The NIDC (or IPC) is set up and joins the PADIS network without computer equipment of data transmission facilities; it participates by adopting PADIS standards and exchanging primary and secondary documents (input sheets);

(b) Level B: The NIDC or IPC has a computer centre with appropriate hardware and documentary software and uses the

network by exchanging data bases on magnetic mediums and helping to establish a clearinghouse for primary documents on microfiche;

(c) Level C: The NIDC (or IPC) has a computing centre and it is interconnected to its subregional centre by a data transmission channel. It uses PADIS-NET at the highest level of connection. At this stage the users of the Centre can have on-line access to the data bases of all components of the system and they can participate in the establishment of an integrated distribution system for primary documents.

19. Estimates by PADIS/CCO in 1981-1982 were based on the probable identification of 65 participating Centres (15 IPC and 50 NIDC) and on the cost levels and technology prevailing at the time.

20. The estimated cost of preparing for participation by these centres in PADIS-NET at level C was estimated at $US 2 million per centre including approximately 600,000 dollars for interconnection (data transmission). In view of the considerable reductions in the cost of computer equipment during the past years together with technological advances in telecommunications, these estimates must be adjusted.

21. In principle the PADIS-NET telecommunications network should be designed with the following preliminary specifications:

(a) A channel system having a capacity of 4,800 bit/sec, capable of connecting each participating centre (about 65 NIDCs and IPCs) to its subregional centre (four PADIS/SRCs);

(b) A "specialized" 9,600 bit/sec network connecting the four subregional centres (PADIS/SRC) to the PADIS/CCO using the most appropriate technology;

(c) A group of high-speed channels (1 Mbit/sec) available over short periods for the exchange of information in telefacsimile (primary documents);

(d) The possibility of interconnection with extra-African networks.

22. Based on these general specifications, preliminary outline studies were conducted by PADIS in 1981-1982 with the assistance of the European Space Agency (ESA). A more detailed study is now needed to determine the most appropriate technology for the network and lay the plans for execution.

23. PADIS should be able to carry out this study in cooperation with the most competent technical bodies at regional and international levels.

24. The aims of this study should be:

(a) Definition of a network incorporating channels of 4,800 to 9,600 bit/sec as mentioned in paragraph 21, for use with data bases and for distributing computer printouts (research findings);

(b) Specifications for a digitalizing system for primary documents using economical appropriate technology, available on the market (digitalization of images of the facsimile type, automatic character recognition);

(c) Specifications for a memory system for digital images on machine readable mediums (video disc) allowing automatic transmission on request;

(d) Definition of a high speed telefacsimile image transmission network available for short periods during the day (or night) taking into account the recent technological advances in this field (IBINET, VITA, etc).

25. One of the constraints of this study would be the use of cheap and small antennae such as those planned for the IBINET and VITA projects.

26. Until this telecommunications network is set up it would be advisable to consider agreements with air transport companies on providing a reliable CCO-SRC communication link of the diplomatic bag type in order to avoid the vagaries of the ordinary postal services.

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MEANS OF THE PADIS CENTRAL CO-ORDINATION OFFICE FOR EXECUTING THE REGIONAL PROGRAMME

NON OFFICIAL TRANSLATION

7. Means of the PADIS central co-ordination office for executing the regional programme

1. The Central Co-ordination office of PADIS (PADIS/CCO) was created in 1981 in Addis Ababa and is located in the Headquarters of the United Nations Economic Commission for Africa. (ECA)

2. The immediate objective of PADIS, reformulated hereafter, have been in particular defined in the project document RAF/79/078 and RAF/81/037.

3. (a) The PADIS sub-system

(a.1) - PADIS-DEV and PADIS-COM components at regional level;

(a.2) - PADIS-PROM and PADIS-CORE components with the participation of specialized African institutions;

(a.3) - PADIS-STAT and PADIS-TEND components with the collaboration of ECA substantive divisions;

(a.4) - Inter-connection with non-African information systems according to the priorites and modalities defined by the member States;

(a.5) - The project design and data base administration component including the hardware and software materials suitable for the different phases of the project;

(a.6) - The storage and dissemination component of the primary documents using the most appropriate technology (micro or video copy).

4. (b) Implementation of the PADIS network

(b.1) - Installation of the PADIS/CCO;

(b.2) - Installation of the PADIS/SCC (subregional co-ordinating centres);

(b.3) - Assistance to the institutional PADIS participating centres;

(b.4) - Assistance to member States for the development of the national documentation and information network (PADIS/NITC);

(b.5) - A network project comprising the PADIS/CCO, four PADIS/SCC and a number of PADIS/NIDC or PADIS/IPC approximately 65 centres;

(b.6) - A telecommunication network linking among themselves the centres listed in b.5 by using the most appropriate technology.

5. (c) Implementation of a Training Programme for member States:

(c.1) - Defining the level of qualification of experts working in the framework of the PADIS programme, including the level of education needed and the necessary post descriptions;

(c.2) - Identification of information schools and specialized institutes capable of collaborating in a regional training programme;

(c.3) - Design of a regional training programme.

(c.4) - Contribution to the definition of a precise status of information in Africa.

6. (d) Design of a common policy in development information in Africa

(d.1) - Implementation of a co-ordinating machinery for the elaboration of a common information policy in Africa;

(d.2) - Definition of agreements and administrative procedures to ensure the necessary financial and human resources for the success of this operation.

7. The PADIS action plan envisaged, in 1980, a global panafrican structure comprising the following elements, (intended to be first implemented in PADIS/CCO and progressively to be decentralized at subregional level) :

- bibliographic services
- referral services
- numerical data bases
- technical operation
- data analysis
- reprographic and printing services
- administration

8. During the 1980-1984 period PADIS envisaged the progressive recruitment of approximately 15 personnel and 30 new posts at general service level.

9. However, at the end of the PADIS phase II (December 1984) the PADIS personnel stood at 27: (7 P/L level posts and 20 general service posts).

10. In another respect only 50 per cent of these staff were involved in the development of the PADIS components which were installed during the same period: (3 P/L level posts and 11 GS level posts).

11. This situation shows that only 31 per cent of the planned inputs were used.

12. With regard to the financing of the project, the total budget during phase I and II were 6,368 202 US$. On the other hand, the budget planned for (1980 1984) was $US22,134,300, without including the cost of the satelite transmission. This estimation, after the revision of the immediate objectives in which certain activities were considered as secondary were suspended during 1980-1984 period (Arabisation, preliminary

activities of the network, access to non-African data bases, upgrading of the PADIS/CCO computer the building of the PADIS site came to an estimation of $US7,750,000 for the PADIS phase I and II.

13. The actual budget of $US6,368,202 represents, therefore, approximately 82 per cent of the revised estimated budget.

14. During the same period, the PADIS computer was partially used for the ECA Administrative functions. In exchange, certain ECA divisions such as (Statistics and Population) have provided technical and material assistance which is difficult to quantify with regard to the PADIS components (STAT-COM; POPIN-COM for example). Furthermore, during the same period ECA provided housing and support faciliting for the project.

15. In conclusion, during the phase I and II of the PADIS programmes, the number of staff was only 31 per cent of that eventually foreseen. The financing obtained represented only 21 per cent of that estimated at the beginning of the project i.e. 82 per cent of the revised estimation. Furthermore, the financing obtained ($US6,368,202) was not totally used for the execution of the activities directly related to the Project.

16. It should be observed that the budget of Project during phase II, corresponds to $US1,470,000 per year. This gives an idea of the amount needed for the operation of each subregional centres designed by the Project.

17. It should be rested also that the present staff of PADIS/CCO (3 posts P/L and 11 GS posts which is 31 per cent of the needed staff) is not sufficient enough for the execution of the programmes. Consequently, the output was reduced proportionally due to the above mentioned reasons (5,000 documents in PADIS/DEV instead of 15,000, corresponding nearly to 5,000 per year). Furthermore, this team

with its actual staff, PADIS is not in a position to establish the system and the Network at the beginning of phase III which envisages the participation of nearly 65 centres,

18. The proposed action to resolve these problems are:

(i) Restructuring the PADIS/CCO into two teams, one being specifically in charge of the Project and responsible for ECA administration activities;

(ii) Separating the equipment and software of the computer centre into two systems, one for the administrative purposes of the ECA and the other for the management of the data bases foreseen by the PADIS system, while ensuring the back-up possibility;

(iii) Increasing the number of staff of PADIS/CCO engaged in the activities directly related to the project, to the level foreseen (7 P/L and 20 GS posts);

(iv) Installing a team of regional technical advisers responsible for the conception of the System and the PADIS network, and including, at least, the following experts·

- One regional adviser for the setting up and management of bibliographical and referential data bases;
- One regional adviser on statistical data bases;
- One regional adviser for the technical aspects of the data processing and transmission;
- One regional adviser for the training of the participating centres personnel and for the creation of a Pan-African "clearing house" on primary documents.

(v) Preparing plans for the administrative unit, at the ECA, similar to the one in UNESCO's Division

of Information and Documentation Services, responsible for the management of all the administrative services defined under (I) and (II). This division will be directly responsible for the services of PADIS/CCO and of the four PADIS/SRC, as soon as they become functional (support for the PADIS programme), this unit will gradually be integrated into ECA to be financed from the regular budget.

(vi) Designing the project, to last over five years, focusing on active participation of other United Nations, specialized agencies (UNDP, UNESCO, FAO, UNIDO, etc) for the launching and strengthening of the programmes of phase III.

PADIS EXPENDITURES PHASE I (1980-81)
(Assistance by Donor Organisations)

Donor Organization	CODE	Type of expenditure	Budget (US$)
ADB	10	Salaries	65,322,94
	10	Microfiche technician	13,888.83
	40	Supplies	5,980.43
	40	Equipment	152,308.77
	80	Miscellaneous	12,159.53
	90	Total ADB	249,660.50
UNDP	20	Consultants	8,022.00
	40	Expendable equipment	56,375.00
	40	Non Expendable equipment	480,729.00
	80	Miscellaneous	5,105.00
	90	Total UNDP	550,231.00
IDRC	10	Technical Advisor	100, 305.26
	20	Consultancy	33,806.79
	40	Preparation and printing	58,849.47
	30	Seminars and training	88,612.77
	30	Training at ECA	10,652.48
	30	Training Abroad	2,821.45
	30	Grants and assistance	64,186.13
	90	Total IDRC	359,234.35
			1 159,125.85

PADIS EXPENDITURES PAHSE II (1982 - 84)

(Assistance by Donor Organization)

Donor Organization	Code	Type of expenditure	Budget(US$)
UNDP	10	Project Director	401,398,00
	10	Deputy Director	43,895,00
	10	Chief COS	54,993.00
	10	Documentalists	297,252.00
	20	counsultancy	133,169.00
	10	Travel	48,235,00
	10	Mission costs	15,000.00
	30	Individual fellowships	40,553.00
	30	Group Training	141,818,00
	30	Meetings	32,763,00
	40	Expendable equipment	397,176.00
	40	Non expendable equipment	718,515,00
	80	Miscellaneous	37,141.00
	90	Total UNDP	2,361,902.00
UNDP/TCDC	10	Deputy Chief, TCDC	71,676.00
	10	Documentalist	2,700.00
	10	Senior Documentalist	27,878.00
	10	Senior Documentalist	7,650.00
	10	Senior Documentalist	8,101,00
	10	Bilingual Secretary	8,449,00
	10	Official travel	27,532.00
	30	Meetings (group)	2,708.00
	40	Expendable equipment	37,561.00
	40	Printing expenditure	29,631.00
	40	Sundries	10,745.00
	90	Total UNDP/TCDC	234,001.00

Donor Organization	Code	Type of expenditures	Budget (US$
IDRC	10	Training programme co-ordinator	96,000.-
	30	Training courses in CCO	60,000..-
	30	Advisory services	40,000.-
	30	Sub-regional services	30,000.-
	80	Administrative costs	29,380.-
	40	Photo-composition (DEVINDEX)	64,000.-
	90	Total IDRC	319,380.-
		Total Phase II	2,915,289.-

PADIS EXPENDITURES' PAHSE I (1980 - 81)
(ECA contribution)

Type of Budget	Code	Type of expenditure	Budget
Regular Budget	10	Personnel	216,906.00
	90	Total Regular Budget	216,906.00
Overhead Budget	10	Personnel	239,676.00
	10	Grant	360,000.00
	90	Total Overhead Budget	599,676.00
		Total ECA Phase I	816,582.00

PADIS EXPENDITURES' PAHSE II (1982-84)
(ECA contribution)

Type of Budget	Code	Type of expenditure	Budget
Regular Budget	10	Personnel	789,757.00
	40	Supplies	90,000.00
	90	Total Regular Budget	879,757.00
Overhead Budget	10	Personnel	567,713.00
	40	Equipment	47,000.00
		Total Overhead Budget	614,713.00
		Total ECA Phase II	1,494,470.00

BUDGET OF T
Phases I
BUDGET FORECASTS (1980),

		Phase I (1980 - 1981)	
Codes	Elements	Prevision	Revised Budget
10	Personnel	1,054,500	1,006,500
20	Consultants	250,500	70,500
30	Training	602,000	240,000
100	Equipment	1,648,900	1,058,000
80	Miscellaneous	58,000	-
	Total PADIS	3,613,900	2,375,000

E PADIS PROJECT
d II (1980-84)
EVISIONS AND ACTUAL EXPENDITURES

	Phase II (1982 - 1984)		
Expenditure	Prevision	Revised Budget	Actual Expenditure
996,099	6,293,800	3,326,500	2,468,229
41,828	440,000	80,000	133,169
166,273	750,000	450,000	347,212
794,243	10,931,600	1,420,600	1,394,628
-	105,000	105,000	66,521
1,958,443	18,520,400	5,382,100	4,409,759

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SELECTION OF HARDWARE/SOFTWARE FOR THE PADIS SYSTEM.

Selection of HARDWARE/SOFTWARE for the PADIS System

A. Introduction

1. The possibility of establishing a Pan-African information system geared towards development was reviewed in the study on the DEVSIS-Africa system. The PADIS system was established on the basis of proposals and recommendations contained in that study. The structure of the PADIS system will therefore, often draw on the concept proposed for DEVSIS - the information system for development sciences. The selection of equipment has resulted from an in-depth review both in this study and in the report by M. Pobukovsky, Chief of the UNESCO, Library, Archives and Documentation Services.

B. Selection of Software

2. PADIS is a computerized system designed to serve as a model for the future participating centres. For bibliographic processing, the project opted for selected software packages that could be obtained by member States at no cost. The choice was made from three software packages which met this requirement.

3. (a) The ISIS system (Integrated Set of Information System) developed by ILO and available from UNESCO. It is widely used among IBM 360 and 370 owners operating under the O.S. system.

(b) MINISIS, developed by IDRC in Ottawa, is comparable with ISIS for the interface/user, but is is specifically designed for mini-computers. The files produced by these systems are interchangeable with a minimum amount of conversion. Morocco, Senegal, Tunisia and Zaire are among the current users of the System in Africa.

(c) MILOR is an interactive information retrieval software package written in FORTRAN IV. Although it has a greater flexibility than ISIS and MINISIS it is not as yet so widely used.

4. In view of the fact that the PADIS co-ordination centre represents the hub for a network of national and subregional information and documentation centres and since the MINISIS and CDS/ISIS (O.S. version) software are compatible, Mr. Pobukovsky recommended that PADIS adopts both systems gradually.

C. Selection of hardware

5. Although long-term plans for PADIS call for direct linkage of computers and computer terminals located in member States with the central data base via a telecommunication network, the choice of computer was not determined by the full operational capability required for phase III (1985-1989).

6. It was felt that a low-cost, high performance computer selected to meet the system's objectives would meet the needs for phases I and II. 1/ Additionally, since PADIS is intended to serve as a model for a number of participating national and subregional centres, it was considered important to take into account its cost and availability of software at no extra expense.

7. The selection criteria were as follows :

(a) Quality of the hardware;
(b) Conditions of maintenance;
(c) Training facilities;
(d) Delivery time;

1/ Software/Hardware requirements and recommendations concerning the PADIS coordinating centre. DEVSIS-Africa.

(e) Availability of basic software;
(f) Availability of documentation;
(g) The cost of the hardware and the software required;
(h) Back-up possibilities.

8. The following computers were considered in view of the criteria mentioned above and because they were compatible with MINISIS or CDS/ISIS :

(a) Hewlett - Packard 3000 Series III
(b) ITEL
(c) AMDAHL
(d) IBM 380/148
(e) RIAD ES 1035

D. Present PADIS equipment

(a) Hardware

9. Hardware for the PADIS project was selected following a careful review of the existing information system. The study was undertaken by Mr. Pobukovsky. Recommendations were made on both the software and the hardware required for the PADIS co-ordination centre.

10. The study led to the selection of MINISIS software and the HP 3000 III series computer. Because IDRC was providing the MINISIS software and in view of the price of the basic configuration, the technical specification and maintenance facilities in Addis Ababa, the HP 3000 computer was considered the most appropriate for phase I and II of the project. In its letter of recommendation to the United Nations purchase committee in New York, the ECA contracts committee, ECA/MULPOC/TANGER/EV/14" Aware of the fact that the funds had been acquired from donor agencies, recognizing that the feasibility studies recommended the suitability of this computer, understanding that the usual bid procedure has been completed." decided to recommend to Headquarters contracts Committee The purchase of the HP 3000 computer.

Furthermore, IBM equipment which met the requirements was not available on the market at the time in Addis Ababa.

In its initial configuration, the HP 3000 series IV was equipped with :

(a) A 512 K octet memory;
(b) Two 120 M octet detachable disks;
(c) Two magnetic tape drive utilities (1.600 B.P.I.);
(d) Two 300 lines/mn. printers;
(e) Its own control panel;
(f) Ten interactive terminals.

11. Since then, the configuration underwent several modifications. The latest was as follows:

(a) A central 2048 K byte memory;
(b) Two fixed 404 M byte magnetic disks;
(c) Two 120 M byte magnetic discs
(d) Two 1000 lines/minute printers;
(e) Forty-eight interactive terminals linked to the central unit;
(f) A graphic configuration (a HP 9872S curve plotter and a 2631 G printer)

(b) Software

12. The software currently available in PADIS is generally similar to the supplier's (HP);specialized software is also available.

b.1. HP Software

13. The operating system - MPE IV - is a flexible and powerful system which allows both transaction and batch processing. Its basic operating software includes

(i) COBOL, FORTRAN, RPG II, SPL and PASCAL programming languages;

(ii) Sorting and merging utilities SORT/MERGE;

(iii) The data base management system - IMAGE 3000 with interrogation language - QUERY 3000;

(iv) The management and file editing utilities - FCOPY:file/copying
EDITOR:file editing
KSAM:Keyed sequential Access Method.

(v) Acquisition and checking utilities - VIEW 3000

14. b.2. Special software

- MINISIS, a bibliographic data base management system supplied by IDRC, used for the development of bibliographic data bases and the management of the PADIS-CORE data base.

(i) SPSS, a set of programmes for statistical applications;

(ii) INSIGHT: a programming tool to be used by computer experts for developing on-line applications around data bases managed by IMAGE 3000;

(iii) ISEA:interactive software for econométric analysis.

15. As a computing centre, PADIS has developed new applications for the ECA administration.

E. Conclusion:

16. Owing to the size and the multiplication of bibliographic data bases developed and managed by the system as well as the increasing number of users, the set-up is rapidly being saturated and the response time has deteriorated. The configuration selected for phase I is therefore inadequate for continuing PADIS services and for serving as the ECA computing service.

17. Since the beginning of the project, this configuration has been considered as a first stage in establishing PADIS computer centres. Under an arrangements with UNDP and ECA the system has also been used byECA (UNDP provided funds for the computer and ECA provided the staff to operate the centre). This arrangement was adopted to overcome resource limitations and to maximize the rate of utilization of the system. Steps are being taken to increase present capacity by installing a new HP 3000 series 44 computer and disk capable of providing increased processing power and backup facilities. It will then be possible to dedicate one configuration to the PADIS project.

F. Reprography and printing

18. "Having access only to citations and abstracts of literature available elswhere and not being able to obtain a copy for closer examination reduces the usefulness of an information system. Therefore PADIS is working towards providing copies of all literature cited in its bibliographies and indexes.2/PADIS selected the microfiche as the most practical medium for the duplication and conservation of primary documents. Use of microfiches will considerably reduce the cost of storage, reproduction and postage and therefore the time required for delivery of information to the user. Where microfiche readers or reader/printers are not available to the uses of the System will make an effort to provide photocopies either from microfiches or from original documents, if available.

19. A microfiche laboratory has therefore been installed at the PADIS centre to process documents for a central microfiche file from which copies can be made.

20. Equipment available in the microfiche laboratory is as follows:

(i) 2 BELL & HOWELL Microfiche cameras;
(ii) 1 microfiche film developer;
(iii) 1 BELL & HOWELL Jacket filler:

2/ Study Devsis Africa

(iv) 1 AM Brunning OP 10 Diaso Copier
(v) 1 ABR-610 Reader/Printer;
(vi) 20 microfiche readers.

21. With regard to printing, "since the documents to be distributed must be of high quality, error free, easy to read and published with a minimum time lag," 3/ PADIS has acquired the following high quality printing equipment :

(i) Plate maker;
(ii) Plate developer;
(iii) Plate dryer;
(iv) 3 offset machines 210-318-213;
(v) Gestetner OPC 7D Camera.

3/ Study Devsis Africa

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First meeting of the PADIS
Regional Technical Committee

26 - 27 March 1985, Addis Ababa, Ethiopia

Financial Implications of the PADIS Programme

IV. Financial implications of the PADIS Programme

1. The programme for establishing and promoting a Pan African Documentation and Information System was designed as part of an international project managed by ECA and with multilateral financing.

2. For the period 1980-1984 (phases I and II), financing was provided by UNDP, ADB, IDRC and ECA (regular programme and extra-budgetary funds).

3. The total budget required for carrying out the PADIS project was US$ 1,958,443 for phase I (1980-1981) and US$ 4,409,759 for phase II (1982-1984), totalling US$ 6,368,202 for both phases (1980-1984).

4. The average annual PADIS budget during phase II (1982-1984) was US$ 1,469,000 per annum. The breakdown is given in Annex 3 (first column).

5. At the beginning of 1985, the first year of phase III of the programme covering the period from 1985 to 1989 (five years), the financial situation of the project is as follows:

6. Most of the funding sources which supported PADIS during phases I and II are continuing to do so at the beginning of phase III. However, funds available at present can cover only 1985 and part of 1986. Annex 1 shows contributions to PADIS for 1985 under UNDP projects RAF/81/037, RAF/82/005 and RAB/82/008,* 1 by the IDRC and by ECA, within its regular Programme and from extra-budgetary financing.

7. The total of these contributions amount to US$ 1,246,533 for 1985.

8. Annex 2 shows contributions available to PADIS for 1986 under UNDP projects RAF/82/005, RAB/82/008 and from ECA (estimates).

9. The total budget available to the PADIS project for 1986 is US$ 854,084 which is quite inadequate to carry out the PADIS/CCD mission (Annex 2).

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* 1 Project RAB/82/003 is currently up for approval

10. Annex 3 gives an estimate of the financing required immediately so that activities undertaken by the project in 1985 can be continued in 1986. This financing requires additional urgent funding in 1986 of approximately US$ 392,400 assuming that no new programmes are undertaken in the field during that year under the Project.

11. The recruitment of PADIS Chief Technical Adviser and two regional advisers in 1986 as well as a small budget for equipment will entail additional financing of US$ 210,000 (Annex 3, column 5).

12. Assuming that additional financing of US$ 602,400 is secured (US$ 392,400 plus US$ 210,000) the budget available in 1986 would amount to about US$ 1,456,500 which is deemed to be the average annual budget for phase II.

13. Annex 4 shows the estimated evolution of PADIS budgets during 1985 (amounts available), 1986 (additional amounts required) and 1987 (amounts to be negotiated).

14. The following approach is suggested for drawing up a global strategy to provide financing for the project:

a. Negotiation with UNDP for additional emergency assistance for 1986 amounting to about US$ 390,000 as shown in Annex 3, column 4, as additional funding for phase III preliminary activities;

b. preparation of a draft resolution, to be submitted for approval to the ECA Conference of Ministers, giving the Executive Secretary of ECA a mandate to negotiate with funding sources on behalf of the Member States as to the practical conditons of assistance to the PADIS Programme; and,

c. negotiation with the funding sources interested in cooperation with PADIS (UNDP, EEC, bilateral aid) for financial assistance amounting to US$ 1.5 million per annum for financing PADIS/CCO (column 3 of Annex 4).

Code	Components	RAF/81/037 (3)	RAF/82/00 (3)
10	Personnel	10.645	264.000
20	Consultants	-	-
30	Training	4,833	-
40	Equipment	-	97.138
80	Other costs	3,800	8.000
	Total 1985 %	19,278 (1,54%)	369.138 (29,61%

1/ ECA contribution under its Regular Budget the period 1982-1984.

2/ ECA contribution from extra-budgetary fu the period 1982-1984.

3/ UNDP contribution under the Regional Pro

4/ UNDP contribution under its Regional Pro

5/ Contribution from the Canadian Internati

ANNEX 1

DIS Project Budget (1985)

	RAF/82/008 (4)	IDRC (5)	ECA REG(1)	ECA Ext(2)	TOTAL
	62.000	49.117	290.000	210.000	885.762
	-	-	-	-	-
	30.000	100.000	-	-	134.833
	43.000	-	30.000	-	170.138
	14.000	30.000	-	-	55.800
	149.000 (11,95%)	179.117 (14,36%)	320.000 (25,67%)	210.000 (16,85%)	1.246.533 (100 %)

- Estimates based on contributions to the PADIS Programme during

ls - Estimates based on contributions to the PADIS Programme during

ramme for African States in the South of the Sahara.

ramme for Arab States (up for approval).

nal Development and Research Centre (IDRC).

PA

PARTIA

Code	Components	RAF/82/005 (3)
10	Personnel	186.084
20	Consultants	-
30	Training	-
40	Equipment	-
80	Other costs	7.000
	Total 1986	193.084
		(22,61%)

(1) ECA contribution - Regular Budget (

(2) ECA contribution - Extra budgetary

(3) UNDP contribution - Regional progra

(4) UNDP contribution - Regional progra

ANNEXE 2

IS PROJECT BUDGET

CONTRIBUTION FOR 1986

RAF /82/008 (4)	ECA/REG (1)	ECA/EXT (2)	TOTAL
-	300.000	230.000	716.084
38.000	-	-	38.000
20.000	-	-	20.000
27.000	30.000	-	57.000
16.000	-	-	23.000
101.000	330.000	230.000	854.084
(11,83%)	(38.64%)	(26,93%)	(100%)

timate)

ources

ne for African States in the South of the Sahara

ne for Arab States

A

Estimates of PADIS Pro

Component	Projections (1)	
Personnel	660.000	6
[illegible]	45.000	
[illegible]	134.000	1
[illegible]	470.000	1
[illegible] costs	4.000	
[illegible]	1.169.000	1.2

1/ [illegible] based on trends observed dur

2/ [illegible] available in 1985

3/ [illegible] budget available for 1986

4/ Budget requirements for the continuatio

5/ [illegible] budget required to recruit a
purchase additional equipment.

NEXE 3

ent of urgent funding requirements to cover activities
planned for 1986

been incurred (US$1,246,000). For 1986, only a partial
sum (January 1985). Urgent additional financing of about
ent.

total of US$604,400) would make it possible to pursue the

Budget (1)	Partial budget available (1986)(2)	Necessary budget allocations (1986 (3)	Additional budget (1986)(3)	Total estimated 1986
5.762	754.084	131.678	140.000	1,025.762
-	-	-	20.000	20.0[illegible]
[illegible].833	20.000	114.833	-	134.833
[illegible].138	57.000	113.138	50.000	220.138
[illegible].800	23.000	32.800	-	55.800
6.533	854.084	392.449	210.000	1.456.533

the period 1982 - 1984

of PADIS activities in 1986

Chief Technical Adviser and two regional advisers in 1986 and to

ESTIMATED

Note: The following budget columns show the c
management and occasional assistance t
regional level may require an annual b

Code	Components	1985 (1)
10	Personnel	885.76
20	Consultant	-
30	Training	134.83
40	Equipment	170.13
80	Other costs	55.80
	TOTAL	1.246.53

1/ Budget already available

2/ Only $US854,084 is available; an additi
($US392,400 as an emergency contributi

3/ Revised budget estimates after separat
(approximately $US530,000 per annum) f
$US670,000 per annum must be budgeted
shows distribution of the budget after

ANNEX 4

VOLUTION OF THE PADIS PROJECT BUDGET (1985 - 1987)

timated evolut on of the PADIS budget to cover PADIS/CCO
some member States. From 1987 expanded activity at sub-
get amounting to $US 1.6 million per subregion

1986 (2)	1987 (3)
1.025.762	870.000
20.000	70.000
134.833	150.000
220.138	500.000
55.800	10.000
1.456.533	1.600.000

nal contribution of $US602,500 must be secured as soon as possible
).

on of purely administrative activities covered directly by ECA
m PADIS regional activities. An additional amount of about
or assistance activities to member States. Budget column (3)
these changes (minus $US530,000 plus US$670,000).

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10. PADIS Work Programme for the period 1985 - 1986

10. PADIS Work Plan for the period 1985 - 1986

Codes	Activities	Dates
1.	Training	
1.1	PADIS participation at a meeting in Rome organized by the United Nations Centre for Science and Technology for Development (UNCSTD)	21-25 Jan. 85
1.2	Organization of a training course at the Botswana National Documentation and Development Research Institute	Jan 85
1.3	Organization of a meeting of experts in Harare, Zimbabwe, followed by a seminar for users (ESADIS subregion)	Feb 85
1.4	Participation by PADIS at a PADIS/DSE experts' meeting in Harare	March 85
1.5	PADISmission to Botswana to discuss the adoption of PADIS standards and of collaboration by Botswana in the PADIS-DEV component	March 85
1.6	PADIS mission to Zambia and Zimbabwe to determine their needs for PADIS participation	March 85
1.7	Participation at a meeting at the Lusaka MULPOC to discuss the organization of the subregional centre (SRC) for Eastern and Southern Africa (ESADIS)	March 85
1.8	Participation in an HP management systems course by a member of PADIS/CCO	April 85
1.9	Training of ECA personnel in the use of MINISIS and word-processor software	April 85
1.10	Organization of training courses for ECA personnel in the use of HP software	April 85
1.11	Organization of training for member States with a view to the installation of data-processing systems in their participating centres (NIDC). See also item 6.10	April 85
1.12	Organization of a training course for the documentation service of the Organization of African Unity (OAU) with a view to its effective participation in the PADIS network	April 85

Codes	Activities	Dates
1.13	Visit to the Institute of Information and Library Sciences at the Moi University, Neurda, Kenya and to the Kenyan National Council of Science and Technology to discuss their collaboration with PADIS	April 85
1.14	Preparation of a training programme for the heads of participating centres of member States in the Northern, Eastern and Central regions (NADIS, ESADIS and CADIS)	May/June 85
1.15	Organization of the course described in item 1.14, in Addis Ababa. About 10 participants are expected	July 85
1.16	Visit to the RESADOC centre in Niamey to discuss the content of training courses for the West African countries (WADIS)	August 85
1.17	Preparation of the syllabus for a PADIS training course to be organized in Niamey similar to the one described in item 1.14 but for West Africa (WADIS)	Sept. 85
1.18	Training seminar on the preparation of statistical data bases (for English-speaking countries) (in collaboration with the Statistics Division)	Sept/Oct 85
1.19	Organization of the WADIS course in Niamey. About 16 participants are expected	Oct. 85
1.20	Visit of the training programme co-ordinator to African training schools and institutes: University of Botswana, University of Makarere (Uganda), University of Ibadan (Nigeria), University of Addis Ababa (Ethiopia)	Nov. 85
1.21	Critical review of 1985 training activities and revision of activities planned for 1986. Preparation of a consolidated report	Dec. 85
2.	Bibliographic data bases	
2.1	Preparation of the PADIS/DEV component bibliographic data base by analysis of documents available at the ECA (approximately 500 references)	Jan/Dec. 85 (continuous)

Codes	Activities	Dates
2.2	Preparation of the PADIS/DEV component bibliographic data base in collaboration with the participating centres (Botswana, guinea, Ethiopia, Morocco, Algeria, the Niger and Zambia). A further 2000 - 2500 references are expected from these countries bringing PADIS/DEV into existence as a regional co-operative system	Jan/Dec. 85
2.3	Bringing PADIS/DEV data base on-line with MINISIS	Jan/Dec. 85 (continuous)
2.4	Printing of two volumes of the DEVINDEX-Africa index with updating of the PADIS-DEV base	Dec. 85
2.5	Updating of the PADIS indexing manual for bibliographic data	June 85
2.6	Establishment of a microfiche collection of primary documents analysed in the PADIS/DEV component approximately 3000 microfiches concerning non-standard documents in particular)	Dec. 85
2.7	Acquisition of two further data bases for the PADIS-COM component (the AGRIS and UNDIESA/DIS bases) and bringing on line with MINISIS	Sept. 85
3.	Reference data bases	
3.1	Preparation of the reference data base on African experts for the PADIS-CORE component with the assistance of UNDP (TCDC) and the ECA Divisions concerned, particularly the Statistics and Population Divisions and the agriculture and industry sectors	Jan/Dec. 85 (continuous)
3.2	Bringing the PADIS-CORE data base on-line with MINISIS	Jan/Dec. 85 (continuous)
3.3	Printing of the second volume of the Directory of African Experts with updated PADIS-CORE data	Dec. 85
3.4	Collection of data for the preparation of a directory of African institutions specialized in agriculture and industry. Draft of the analysis format for a data base relating to African institutions for PADIS-CORE, in collaboration with TCDC/INRES	Oct. 85

Codes	Activities	Dates
3.5	Updating of the computerized management system for United Nations personnel at the ECA	Jan/Dec. 85 (continuous)
4.	Numerical data bases	
4.1	Collaboraton with the ECA Statistics Division for the preparation of the PADIS-STAT (level 3) statistical data base comprising 60,000 statistical units at present	Jan/Dec. 85
4.2	Publication of updates for the African Statistical Yearbook on the basis of PADIS-STAT data (by the ECA Statistics Division)	Dec. 85
4.3	Collaboration with the ECA Statistics Division for an expansion of the PADIS-STAT base in accordance with the outline given in the feasibility study on this component (levels 1 and 2)	Sept. 85
4.4	Bringing the PADIS/STAT base on-line with IMAGE-3000 software	Jan. 85 (continuing)
4.5	Updating of the African countries computerized national accounting system in collaboration with the CEAO Statistics Division	Jan/Dec 85 (continuous)
5.	PADIS-NET Network	
5.1	Contents with IBI under ECA/IBI co-operation agreements to study the application of IBINET technology to the PADIS-NET network project	June 85
5.2	Contacts with the Panafrican Telecommunications Union (PATU/UPAT) and the African Postal and Telecommunications Union (UAPT) to study African telecommunications infrastructures	Sept. 85
5.3	Contacts with national and international research organization (ECA, VITA, SATEL-CONSEOL) to study the most appropriate telecommunications technology for developing PADIS-NET	Jan/Dec. 85

Cycles	Activities	Dates
5.4	Contacts with AIDOC to study the feasibility of a co-operation agreement between ALIS and PADIS-NET and with the ARABSAT project secretariat to study the feasibility of a PADIS/CCO/ALDOC interconnection through ARABSAT	June 85
5.5	Study on consolidating the structure of the PADIS subregional centres in Niamey (WADIS) and Lusaka (ESADIS)	June 85
5.6	Study and a establishment of the PADIS/CCO interconnection with the UN Headquarters in New York by special line for verbal communication and data transmission, United Nations (in collaboration with ACCIS)	June 85
6.	Data processing	
6.1	Increased capacity of the PADIS/CCA computer centre with the installation of an extra HP 3000/44 computer	
6.2	Transformat of the HP 3000/44 into an HP 3000/48 and its interconnection to the HP 3000/III computer installed in PADIS/CCO in January 1981.	
6.3	Installation of an Arabicized version of the MINISIS software in the PADIS/CCO data-processing system (in collaboration with ALDOC)	
6.4	Installation at PADIS/CCO of screen terminals and a printer and establishment of an arabicized Unit (in collaboration with ALDOC)	
6.5	Assistance to ECA Administrative Services for the development of a new integrated management system for the ECA Secretariat (in keeping with the requirements of the Finance, Personnel, General Services and Library Sections)	
6.6	Provision of services to all PADIS data-processing system (hardware and software) users for all PADIS components (DEV, COM, CORE, STAT) and for administrative use (ADMIN).	

Codes	Activities	Dates
6.7	Conversion of bibliographic data base formats acquired in the component PADIS-COM, particularly with regard to the bases LABOR (ILO) and DIS (UNDIESA)	
6.8	Installation of the hardware necessary for the PADIS/CCO Headquarters/UN (New York) interconnection listed under item 5.6	
6.9	Continuation of applications developed by CCO	
6.10	Assistance to member countries (Zambia, the Niger and Benin) for the installation of data-processing systems in their national centres.	
7.	Services to PADIS users	
7.1	Dissemination of information about the PADIS system and Network to member States to inform them about progress in the project and about services which can be obtained by users	Jan/Dec. 85 (continuous)
7.2	Preparation of a PADIS information brochure	June 1985
7.3	Updating of the address list of indivuduals, bodies and institutions likely to co-operate with PADIS	Jan/Dec. 85
7.4	Identification of potential PADIS system users and their information requirements (system's scope)	Jan/Dec. 85 (continuous)
7.5	Definition of types of servie which PADIS may provide to users on request dissemination of data bases, printing of indexes and directories, background/ search selective dissemination of information, supply of microfiches, etc.)	Jan/Dec. 85 (continuous)

NOTE: A detailed work plan for 1986 will be established on receipt of conformation that the necessary funds are available to continue the project activities. It is hoped that the financing level will allow PADIS activities to increase in 1986 in the fields covered in the plan for 1985, particularly with regard to assistance to member States.